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Conference Abstract

Utilizing a Dashboard for Efficient Biodiversity Data Overview and Gap-Filling Effort

Daphne Hoh[‡], Jun-Yi Wu[§], Mao-Ning Tuanmu[‡]

‡ Taiwan Biodiversity Information Facility, Biodiversity Research Center, Academia Sinica, Taipei, Taiwan
§ School of Forestry and Resource Conservation, National Taiwan University, Taipei, Taiwan

Corresponding author: Mao-Ning Tuanmu (mntuanmu@gate.sinica.edu.tw)

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Abstract

Taiwan Biodiversity Information Facility has been leading the effort to integrate and mobilize biodiversity data nationally. We recently accomplished the integration of local databases and successfully developed a data portal that efficiently links to the most comprehensive biodiversity database in Taiwan: the Taiwan Biodiversity Information Alliance Data Portal. However, we identified an emerging challenge following this development. Preliminary analyses have revealed several gaps in the current dataset, impeding robust data use. For instance, land data dominates over sea data, and bird records are more abundant than those of other taxonomic groups. In our endeavour to enhance national biodiversity data coverage, we are actively exploring methodologies to address these existing data gaps. Here, we broadly define data gap as the absence of required data or information for use. Our primary objective is to empower users to identify these gaps, thereby facilitating efficient, informed survey planning and eventually filling these gaps. For this purpose, we are evaluating the effectiveness of a user-friendly dashboard, tailored for biodiversity survey planning in Taiwan. We developed and deployed a R Shiny dashboard*[1] that provides users with insightful data visualizations that highlight spatial, temporal, and taxonomical data overviews. It also offers customizable filtering options, such as by major taxon groups and habitat types, for easy viewing. Additionally, the dashboard includes a download function, so users can access spatial and taxon gap information in their survey planning efforts.

After deploying the dashboard, we conducted user interviews to collect feedback aimed at refining its usability and effectiveness. In addition to helping survey planning, we anticipate that this tool will also aid data users in promptly assessing data integrity within the national biodiversity data portal, thereby enabling them to identify potential data gaps and biases that may affect subsequent use. Through this presentation, we aim to share our experience in developing an interactive dashboard tailored for public use. Preliminary results had indicated that the dashboard highlighted some visible data gaps and biases, particularly in underrepresented areas such as marine habitats and less-studied taxonomic groups. Additionally, user interviews revealed a demand for a feature that provides single species data overviews, suggesting a potential area for further development to enhance the tool's utility. Some challenges remain, such as the need to enhance data granularity and user interface usability. Future work will focus on incorporating more real-time data integration and expanding the range of customizable filters. We believe these efforts will further empower users in Taiwan to conduct more informed and efficient biodiversity surveys, ultimately supporting research and policy-making to address critical biodiversity data gaps.

Keywords

data gap, data visualization, biodiversity survey planning, research support

Presenting author

Daphne Hoh

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Conflicts of interest

The authors have declared that no competing interests exist.

Endnotes

[*1] https://biodivdatagap.tbiadata.tw/